PRINTERHANDBUCH

fuer OKI Microline 280 bzw. ML 182 Elite

Modelle:	**ML 280 STD**	**ML 280 IBM**
Art.-Nr.:	ML280 Par.: 0128001	ML280 Par.: 0128002
Art.-Nr.:	ML280 Ser.: 0128011	ML280 Ser.: 0128012
Modelle:	**ML 182 Elite STD**	**ML 182 Elite IBM**
Art.-Nr.:	ML182 Par.: 0118251	ML182 Par.: 0118252
Art.-Nr.:	ML182 Ser.: 0118261	ML182 Ser.: 0118262
Modell :		**ML 280 Epson**
Art.-Nr.:		ML280 Par.: 0128003
Art.-Nr.:		ML280 Ser.: 0128013
Modell :		**ML 182 Elite Epson**
Art.-Nr.:		ML182 Par.: 0118253
Art.-Nr.:		ML182 Ser.: 0118263

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(V.110/X.75)

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(300 bis 28800 bps,8,N,1)

T-ONLINE/DATEX-J/Btx: *222333#

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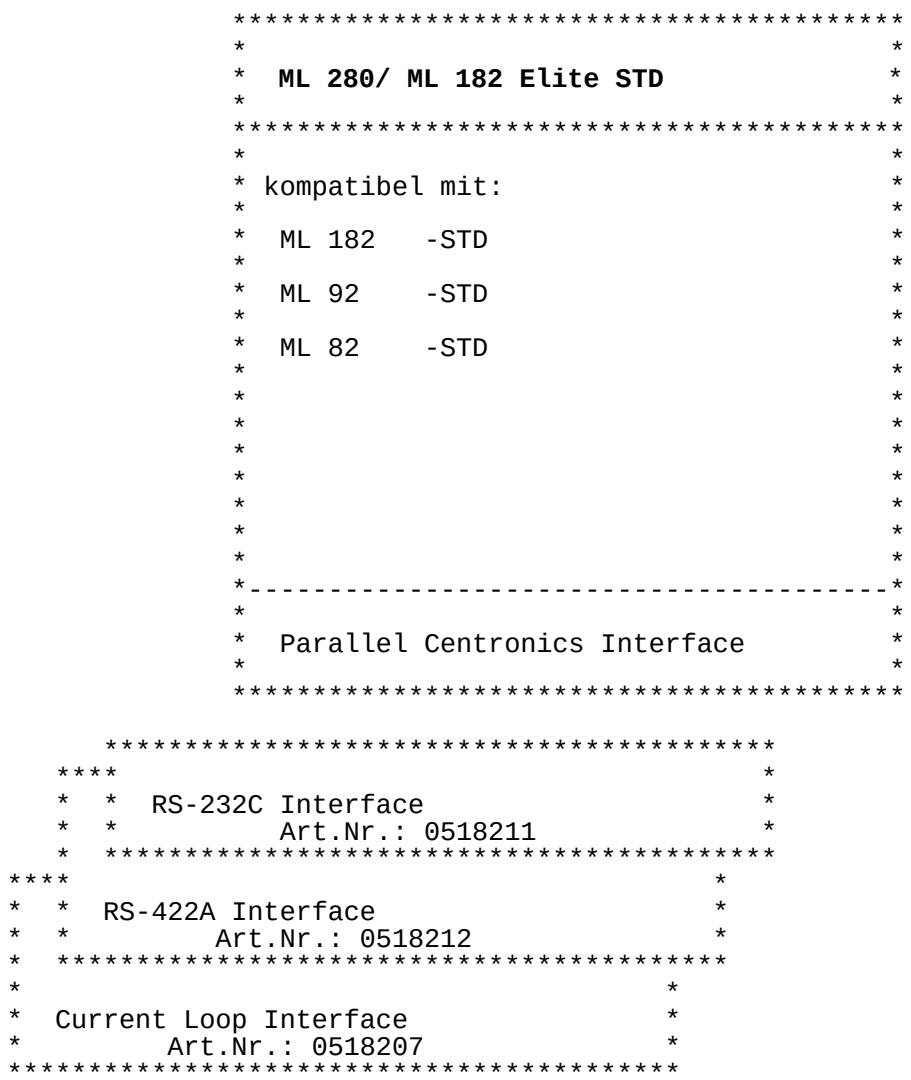
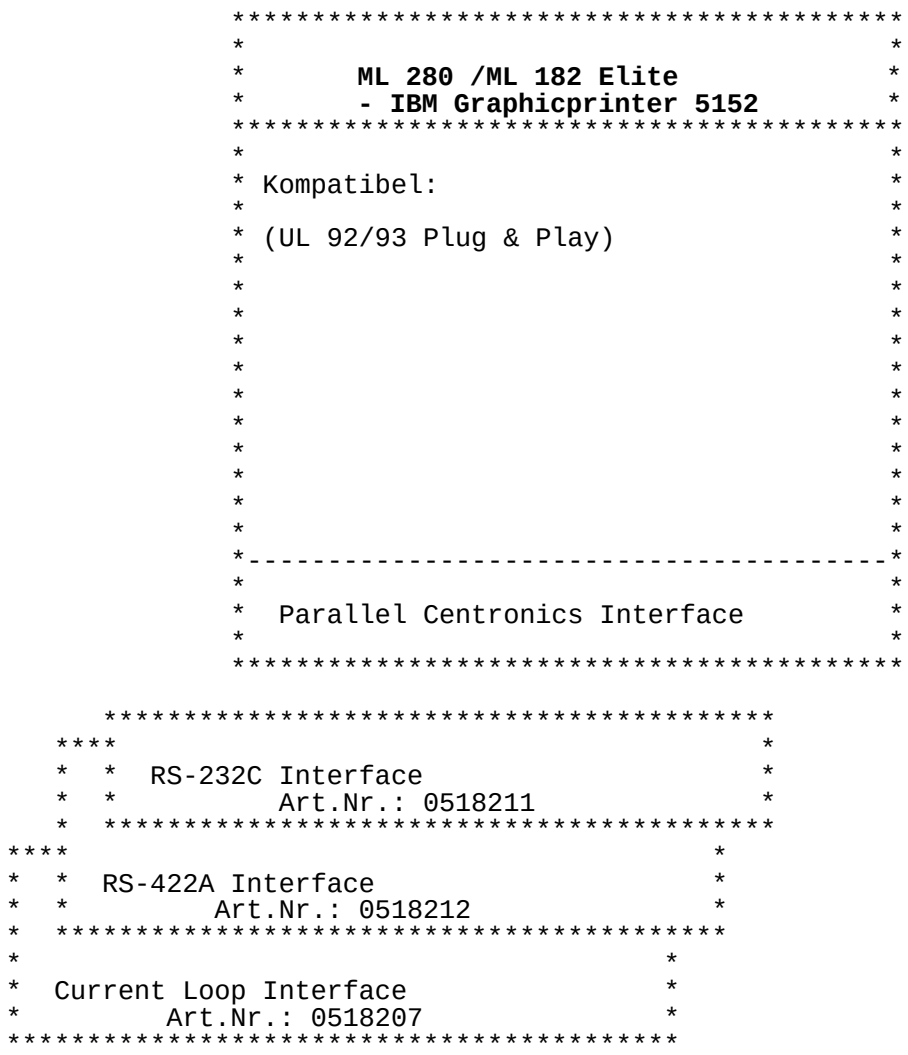

ML 280/ ML 182 Elite STD
kompatibel mit:
ML 182 -STD
ML 92 -STD
ML 82 -STD
Parallel Centronics Interface
RS-232C Interface
Art.Nr.: 0518211
RS-422A Interface
Art.Nr.: 0518212
Current Loop Interface
Art.Nr.: 0518207

FUNCTION	COMMENT	ASCII	HEXADCEIMAL
CHARACTER SET			
BLOCK GRAPHIC CHAR. SET		ESC ! 1	1B 21 31
NATIONAL CHARACTER SET		ESC ! n	1B 21 n
STANDARD CHARACTER SET		ESC ! 0	1B 21 30
CUT SHEET FEEDER			
EJECT SINGLE SHEET		ESC EM R	1B 19 52
INSERT SINGLE SHEET		ESC EM I	1B 19 49
EXECUTION			
CARRIAGE RETURN		CR	0D
CLEAR BUFFER,SET DEFAULTS		CAN	18
FORM FEED		FF	0C
LINE FEED		LF	0A
VAR. LINE FEED n/144"		ESC % 5 n	1B 25 35 n
FORMATTING			
DIRECT SKIP		ESC VT n1 n2	1B 0B n1 n2
FORM LENGTH BY LINES		ESC F n1 n2	1B 46 n1 n2
HORIZONTAL TABULATOR		HT	09
HTABS CLEAR		ESC HT NUL	1B 09 00
HTABS SET BY CHARACTERS	EVERY n CHARACTERS	ESC HT n	1B 09 n
MARGIN SET LEFT	BY DOT COLUMN	ESC % C n1-n3	1B 25 43 n1-n3
SKIP OVER PERFORATION	1/3", ON/OFF ONLY	ESC % S n	1B 25 53 n
TOF SET		ESC 5	1B 35
VERTICAL TABULATOR SKIP	SKIP 1 INCH	VT	0B
GRAPHICS, BIT IMAGE			
DENSITY DOUBLE		ESC R	1B 52
DENSITY SINGLE		ESC Q	1B 51
DENSITY SINGLE		ESC P	1B 50
GRAPHIC END		ETX STX	03 02
GRAPHIC LF WITHOUT CR		ETX DC4	03 14
GRAPHIC LINE FEED WITH CR		ETX SO	03 0E
GRAPHIC START		ETX	03
TEXT LINE FEED WITH CR		ETX LF	03 0A
TEXT LINE FEED WITHOUT CR		ETX DC2	03 12
LINE SPACING			
6 LPI		ESC 6	1B 36
8 LPI		ESC 8	1B 38
VAR. LINE SPACING n/144"		ESC % 9 n	1B 25 39 n
MISCELLANEOUS			

==========

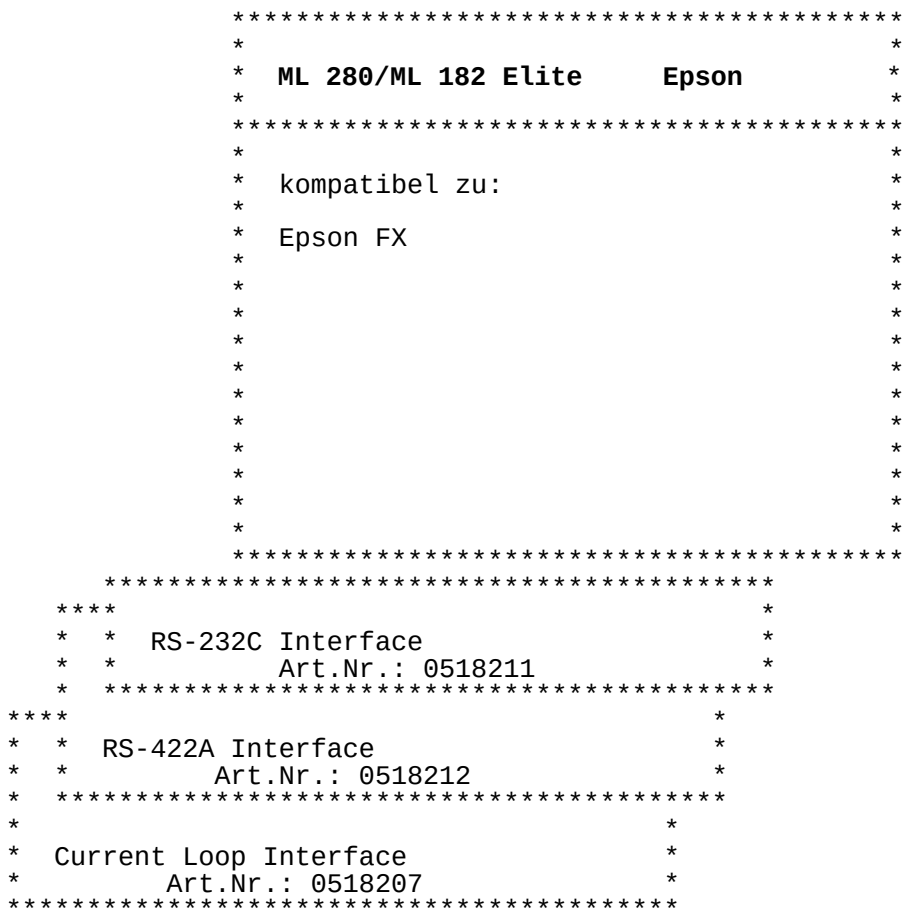
PAPER OUT SENSOR OFF	ESC E 1	1B 45 31
PAPER OUT SENSOR ON	ESC E 0	1B 45 30
PRINT BIDIRECTIONAL	ESC =	1B 3D
PRINT UNIDIRECTIONAL	ESC -	1B 2D

FUNCTION	COMMENT	ASCII	HEXADCEIMAL
PRINT MODE			
10 CPI	PICA	RS	1E
12 CPI	ELITE	FS	1C
17 CPI	CONDENSED	GS	1D
DESIGNATES NLQ MODE		ESC 1	1B 31
DESIGNATES UTILITY MODE	UTILITY MODE	ESC 0	1B 30
DOUBLE WIDTH	USED WITH RS,FS,GS	US	1F
EMPHASIZED OFF	ALSO ENHANCED OFF	ESC I	1B 49
EMPHASIZED ON		ESC T	1B 54
ENHANCED OFF	ALSO EMPHASIZED OFF	ESC I	1B 49
ENHANCED ON		ESC H	1B 48
SUBSCRIPT OFF		ESC M	1B 4D
SUBSCRIPT ON	STOPS ALSO SUPERSCRIPT	ESC L	1B 4C
SUPERSCRIPT OFF		ESC K	1B 4B
SUPERSCRIPT ON	STOPS ALSO SUBSCRIPT	ESC J	1B 4A
UNDERLINE OFF		ESC D	1B 44
UNDERLINE ON		ESC C	1B 43


ML 280 /ML 182 Elite
- IBM Graphicprinter 5152
Kompatibel:
(UL 92/93 Plug & Play)
Parallel Centronics Interface
RS-232C Interface
Art.Nr.: 0518211
RS-422A Interface
Art.Nr.: 0518212
Current Loop Interface
Art.Nr.: 0518207

FUNCTION	COMMENT	ASCII	HEXADECIMAL
CHARACTER SET			
IBM CHARACTER SET I		ESC 7	1B 37
IBM CHARACTER SET II		ESC 6	1B 36
CUT SHEET FEEDER			
EJECT SINGLE SHEET		ESC EM R	1B 19 52
INSERT SINGLE SHEET		ESC EM I	1B 19 49
EXECUTION			
CARRIAGE RETURN		CR	0D
CLEAR BUFFER		CAN	18
FORM FEED		FF	0C
LINE FEED		LF	0A
VAR. LINE FEED n/216"	ONE LINE ONLY	ESC J n	1B 4A n
FORMATTING			
FORM LENGTH BY INCHES	ALSO SETS TOF	ESC C NUL n	1B 43 00 n
FORM LENGTH BY LINES	ALSO SETS TOF	ESC C n	1B 43 n
HORIZONTAL TABULATOR	EVERY 8 CHARS.	HT	09
HTABS CLEAR		ESC D NUL	1B 44 00
HTABS SET BY CHARACTERS		ESC D n1-nk NUL	1B 44 n1-nk 00
SKIP OVER PERFORATION	BY LINES	ESC N n	1B 4E n
SKIP OVER PERFORATION OFF		ESC O	1B 4F
VERTICAL TABULATOR SKIP	SAME AS LF	VT	0B
GRAPHICS, BIT IMAGE			
DENSITY DOUBLE	120 * 72 DPI	ESC Y n1 n2	1B 59 n1 n2
DENSITY DOUBLE HALF SPEED	120 * 72 DPI	ESC L n1 n2	1B 4C n1 n2
DENSITY QUADRUPLE	240 * 72 DPI	ESC Z n1 n2	1B 5A n1 n2
DENSITY SINGLE	60 * 72 DPI	ESC K n1 n2	1B 4B n1 n2
LINE SPACING			
6 LPI	WITHOUT PREV. ESC An	ESC 2	1B 32
8 LPI		ESC 0	1B 30
ACTIVATE ESC A n SPACING		ESC 2	1B 32
LINE SPACING 7/72"	FOR 7 BIT GRAPHICS	ESC 1	1B 31
VAR. LINE SPACING n/216"		ESC 3 n	1B 33 n
VAR. LINE SPACING n/72"	ESC.2 MUST FOLLOW !!	ESC A n	1B 41 n
MISCELLANEOUS			
PAPER OUT SENSOR OFF		ESC 8	1B 38
PAPER OUT SENSOR ON		ESC 9	1B 39

FUNCTION	COMMENT	ASCII	HEXADECIMAL
PRINT MODE			
10 CPI	PICA	DC2	12
12 CPI	ELITE	ESC :	1B 3A
17 CPI	FINE	SI	0F
DESIGNATES ENHANCED MODE		ESC I 2	1B 49 32
DESIGNATES NLQ MODE	NEAR LETTER QUALITY	ESC I 3	1B 49 33
DESIGNATES UTILITY MODE	UTILITY MODE	ESC I 1	1B 49 31
EMPHASIZED OFF		ESC F	1B 46
EMPHASIZED ON		ESC E	1B 45
ENHANCED OFF	DOUBLE STRIKE	ESC H	1B 48
ENHANCED ON	DOUBLE STRIKE	ESC G	1B 47
SUBSCRIPT OFF	ALSO SUPERSCRIPT OFF	ESC T	1B 54
SUBSCRIPT ON	SOH OR ANY ODD NO.	ESC S 1	1B 53 31
SUPERSCRIPT OFF	ALSO SUBSCRIPT OFF	ESC T	1B 54
SUPERSCRIPT ON	NUL OR ANY EVEN NO.	ESC S 0	1B 53 30
UNDERLINE OFF	UNDERSCORE	ESC - 0	1B 2D 30
UNDERLINE ON	UNDERSCORE	ESC - 1	1B 2D 31
WIDTH DOUBLE	FOR ONE LINE ONLY	SO	0E
WIDTH DOUBLE OFF		ESC W 0	1B 57 30
WIDTH DOUBLE OFF	BEFORE END OF LINE	DC4	14
WIDTH DOUBLE ON		ESC W 1	1B 57 31


ML 280/ML 182 Elite Epson
kompatibel zu:
Epson FX
RS-232C Interface
Art.Nr.: 0518211
RS-422A Interface
Art.Nr.: 0518212
Current Loop Interface
Art.Nr.: 0518207

FUNCTION	COMMENT	ASCII	HEXADECIMAL
CHARACTER SET			
CODE EXPANSION OFF	128-159+255 CONTROLS	ESC 7	1B 37
CODE EXPANSION ON	128-159+255 PRINTABL	ESC 6	1B 36
NATIONAL CHARACTER SET		ESC R n	1B 52 n
UNASSIGNED CODE PRINT OFF	0-31+128-159 CONTROL	ESC I 0	1B 49 30
UNASSIGNED CODE PRINT ON	0-31+128-159PRINTABL	ESC I 1	1B 49 31
SPECIAL GRAPHIC CODE ON	128-159 nur STD.SET	ESC m n	1B 6D 04
SPECIAL GRAPHIC CODE OFF	128-159 nur STD.SET	ESC m n	1B 6D 00
COMPOSITE COMMANDS			
PRINT MODE SELECTION		ESC ! n	1B 21 n
CUT SHEET FEEDER			
EJECT SINGLE SHEET		ESC EM R	1B 19 52
INSERT SINGLE SHEET		ESC EM I	1B 19 49
EXECUTION			
BACKSPACE		BS	08
CARRIAGE RETURN		CR	0D
CLEAR BUFFER		CAN	18
CLEAR BUFFER/MASTER RESET		ESC @	1B 40
DELETE LAST CHARACTER	IN BUFFER	DEL	7F
FORM FEED		FF	0C
LINE FEED		LF	0A
PRINT SUPPRESS OFF		DC1	11
PRINT SUPPRESS ON	NO PRINT UNTIL "DC1"	DC3	13
VAR. LINE FEED n/216"	n = 1 TO 255	ESC J n	1B 4A n
VAR. REV.LINE FEED n/216"	n = 1-255, 80 c only	ESC j n	1B 6A n
FORMATTING			
DOT POSITION ABSOLUTE	IN 1/60" UNITS	ESC $ n1 n2	1B 24 n1 n2
DOT POSITION RELATIVE	IN 1/120" UNITS	ESC \ n1 n2	1B 5C n1 n2
FORM LENGTH BY INCHES	n = 1 TO 22	ESC C NUL n	1B 43 00 n
FORM LENGTH BY LINES	n = 1 - 127	ESC C n	1B 43 n
HORIZONTAL TABULATOR SKIP		HT	09
HTABS CLEAR		ESC D NUL	1B 44 00
HTABS SET BY CHARACTERS		ESC D n1...n32 NUL	1B 44 n1..n32 00
MARGIN SET LEFT		ESC l n	1B 6C n
MARGIN SET RIGHT		ESC Q n	1B 51 n
SKIP OVER PERFORATION	n=1 TO 127 LINES	ESC N n	1B 4E n
SKIP OVER PERFORATION OFF		ESC O	1B 4F
VERTICAL TABULATOR CANCEL		ESC B NUL	1B 42 00
VERTICAL TABULATOR SET		ESC B n1...n16 NUL	1B 42 n1...n16 00
VERTICAL TABULATOR SKIP	SAME AS LF IF NO TAB	VT	0B
VFU CHANNEL SELECT	n = 0 to 7	ESC / n	1B 2F n
VFU LOAD	k = 1 to 16	ESC b n m1...mk NUL	1B 62 n m1...mk 00
GRAPHICS BIT IMAGE			

==========

DENSITY DOUBLE	120 * 72 DPI	ESC Y	1B 59
DENSITY DOUBLE,HALF SPEED	120 * 72 DPI	ESC L	1B 4C
DENSITY QUADRUPLE	240 * 72 DPI	ESC Z	1B 5A
DENSITY SINGLE	60 * 72 DPI	ESC K	1B 48
REASSIGN GRAPHICS MODE	ESC * TO ESC K,L,Y,Z	ESC ? s n	1B 3F s n
SELECT 8 BIT GRAPHICS		ESC * mn1n2 v1-vk	1B 2A mn1n2 v1-vk
SELECT 9 BIT GRAPHICS	SINGLE + DOUBLE DENS	ESC ^ a n1 n2 v...	1B 5E a n1 n2 v..

FUNCTION	COMMENT	ASCII	HEXADECIMAL
LINE SPACING			
6 LPI		ESC 2	1B 32
8 LPI		ESC 0	1B 30
LINE SPACING 7/72"	FOR 7 BIT GRAPHICS	ESC 1	1B 31
VAR. LINE SPACING n/216"	n = 0 TO 255	ESC 3 n	1B 33 n
VAR. LINE SPACING n/72"	n = 0 TO 85	ESC A n	1B 41 n
MISCELLANEOUS			
HALF SPEED PRINTING OFF		ESC s 0	1B 73 30
HALF SPEED PRINTING ON		ESC s 1	1B 73 31
MSB SET 0		ESC =	1B 3D
MSB SET 1		ESC >	1B 3E
MSB SETTING CANCEL		ESC #	1B 23
PAPER OUT SENSOR OFF		ESC 8	1B 38
PAPER OUT SENSOR ON		ESC 9	1B 39
UNIDIRECTIONAL PRINT OFF		ESC U 0	1B 55 30
UNIDIRECTIONAL PRINT ON		ESC U 1	1B 55 31
UNIDIR. PRINT (HOME HEAD)	FOR ONE LINE ONLY	ESC <	1B 3C
PRINT MODE			
10 CPI	PICA	ESC P	1B 50
12 CPI	ELITE	ESC M	1B 4D
CONDENSED MODE RESET	20=>12, 17=>10 CPI	DC2	12
CONDENSED MODE SET	10=>17, 12=>20 CPI	SI	0F
CONDENSED MODE SET	10=>17, 12=>20 CPI	ESC SI	1B 0F
DESIGNATES HSD MODE		ESC (0	1B 28 30
DESIGNATES NLQ MODE	LQ WITH 24 PINS	ESC x SOH	1B 78 01
DESIGNATES UTILITY MODE		ESC x NUL	1B 78 00
DOUBLE WIDTH OFF	BEFORE END OF LINE	DC4	14
DOUBLE WIDTH ON	FOR ONE LINE ONLY	SO	0E
DOUBLE WIDTH ON	FOR ONE LINE ONLY	ESC SO	1B 0E
EMPHASIZED OFF		ESC F	1B 46
EMPHASIZED ON		ESC E	1B 45
ENHANCED OFF	DOUBLE STRIKE	ESC H	1B 48
ENHANCED ON	DOUBLE STRIKE	ESC G	1B 47
ITALICS OFF		ESC 5	1B 35
ITALICS ON		ESC 4	1B 34
NLQ AUTO JUSTIFICATION	LEFT,MID,RIGHT,FULL	ESC a n	1B 61 n
PROPORTIONAL SPACING OFF		ESC p 0	1B 70 30
PROPORTIONAL SPACING ON		ESC p 1	1B 70 31
SPACE BETWEEN CHARACTERS	0<=N<=127 (FX:63)	ESC SP n	1B 20 n
SUBSCRIPT OFF	ALSO SUPERSCRIPT OFF	ESC T	1B 54
SUBSCRIPT ON		ESC S 1	1B 53 31
SUPERSCRIPT OFF	ALSO SUBSCRIPT OFF	ESC T	1B 54
SUPERSCRIPT ON		ESC S 0	1B 53 30
UNDERLINE OFF		ESC - 0	1B 2D 31
UNDERLINE ON		ESC - 1	1B 2D 31
WIDTH DOUBLE OFF	ML393:TRIPLE OFF,TOO	ESC W 0	1B 57 30
WIDTH DOUBLE ON		ESC W 1	1B 57 31

PCB - Jumperstellung	Seite: 11/11a
Parallel Centronics IF	Seite: 12-13
RS 232 Interface	Seite: 14-16
RS 422A Interface	Seite: 17-20
Current Loop IF	Seite: 21-24

Aufrüstung auf ML182 Elite unter folgenden Voraussetzungen:

Zwingend notwendig die Platine PCB-15, nur dann können die Eproms getauscht werden.

Bis Rev. 7 keine Jumper eingelötet, daher müssen die Lötpunkte für SP1 und SP3 mit zweireihigen Jumper versehen werden.
Zusätzlich mussen die Widerstaendüe R 103 von 100 K-Ohm auf 10 K-Ohm und R 236 auf 0 Ohm (überbrücken) geändert werden.

ML 182 "alt"	1 EPROM 128 Kb (64 Kb)	SP1 (2 Pin) gesteckt SP3 (2 Pin) nicht gesteckt
ML 182 Elite	**1 EPROM 256 Kb**	**SP1 (2 Pin) nicht gesteckt** **SP3 (2 Pin) gesteckt**

Die übrigen Jumper bleiben unverändert:

SP4	**2 Pin**	**gesteckt**	**+5 Volt an Pin 18 aktiv**
SP5	**3 Pin**	**Seite B**	**AUTO FEED XT (Pin 14)**
SP6	**2 Pin**	**gesteckt**	**I-PRIME Signal (Pin 31) aktiv**

Sollten Sie unter den oben genannten Vorraussetzungen also umrüsten wollen, benötigen Sie ein neues EPROM und das dazu gehörende Handbuch. Beides können Sie über unsere Vertriebsabteilung beziehen.

SP4	**3 Pin**	**A-o B gesteckt**	**+5 Volt an Pin 18 aktiv**
SP5	**3 Pin**	**A o-B**	**AUTO FEED XT (Pin 14)**
SP6	**2 Pin**	**A-o B gesteckt**	**I-PRIME Signal (Pin 31) aktiv**
SP11	**4 Pin**	**Seite A und Seite C**	**32KB**

Centronics-Parallel Interface

36-poliges Interface

$\overline{\text{Strobe}}$	-->	**o** 1	19 **o**	---	GND/0V
D0	-->	**o** 2	20 **o**	---	GND/0V
D1	-->	**o** 3	21 **o**	---	GND/0V
D2	-->	**o** 4	22 **o**	---	GND/0V
D3	-->	**o** 5	23 **o**	---	GND/0V
D4	-->	**o** 6	24 **o**	---	GND/0V
D5	-->	**o** 7	25 **o**	---	GND/0V
D6	-->	**o** 8	26 **o**	---	GND/0V
D7	-->	**o** 9	27 **o**	---	GND/0V
$\overline{\text{ACK}}$	<--	**o** 10	28 **o**	---	GND/0V
Busy	<--	**o** 11	29 **o**	---	GND/0V
Paper End	<--	**o** 12	30 **o**	---	GND/0V
Select	<--	**o** 13	31 **o**	<--	$\overline{\text{Input Prime}}$ ***)
Auto Feed *)	-->	**o** 14	32 **o**	-->	$\overline{\text{Fault}}$
		o	**o**		
GND/0V	---	**o** 16	**o**		
Shield Ground	---	**o** 17	**o**		
+5V **	<--	**o** 18	36 **o**		

--- **o** --- no direction
<-- **o** --> from Printer
--> **o** <-- to Printer

Jumper Setting for Centronics Parallel Internal Test

*) **SP5:**

	A	B
Auto Feed enable	o	o-o
Auto Feed disable	o-o	o

(Im Normalfall Position B)

) **SP4:

	A	B
+5V available	o-o	o
+5V not available	o	o-o

***) **SP6:**

	A	B
I-Prime enable	o-o	o
I-Prime disable	o	o-o

RS-232C Serial Interface Board

SWITCH 1 (SW1) (0 = OFF, 1 = ON)

```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | --- = Factory Setting
---------------------------------
  |   |   |   |   |   |   0   0 ----- = BUSY on SSD/Pin 11 (+12V)
  |   |   |   |   |   |   0   1 ----- = BUSY on SSD/Pin 11 (-12V)
  |   |   |   |   |   |   1   0 ----- = BUSY on RTS/Pin 04 (-12V)
  |   |   |   |   |   |   1   1 ----- = BUSY on DTR/Pin 20 (-12V)
  |   |   |   |   0   0 ----- = Diagn. Mode/Monitor Test= HEX DUMP
  |   |   |   |   0   1 ----- = Normal Mode (for printing)
  |   |   |   |   1   0 ----- = Diagn. Mode/Circuit test (test plug)
  |   |   |   |   1   1 ----- = Normal Mode (for printing)
  |   |   |   0 ----- = Protocol: XON/XOFF
  |   |   |   1 ----- =           Ready/Busy
  |   0   0 ----- = Data bits: 7 (parity bit must be enabled)
  |   |   1 ----- =           8
  |   0 ----- = parity bit enabled
  |   1 ----- = parity bit disabled
  0 ----- = even parity
  I ----- = odd parity
```

SWITCH 2 (SW2) (0 = OFF, 1 = ON)

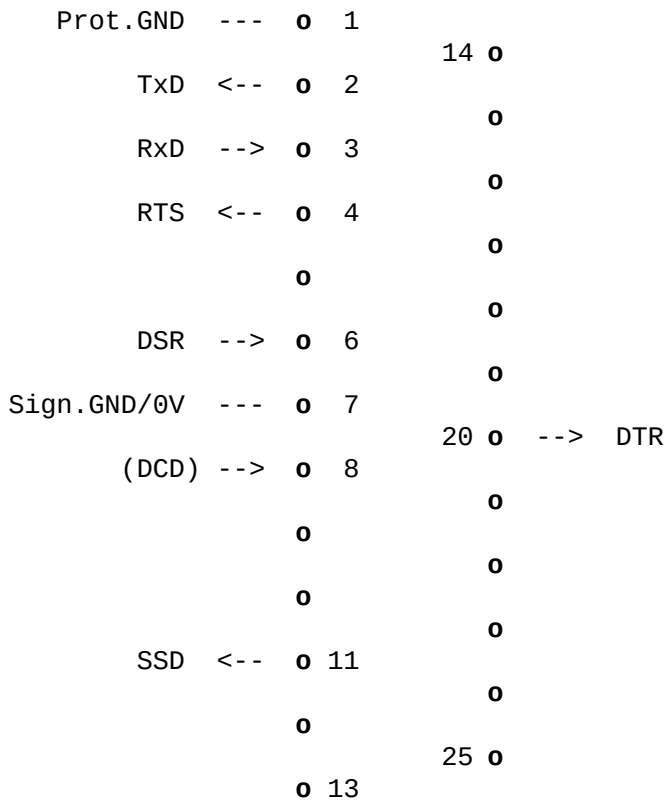
```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | --- = Factory Setting
---------------------------------
  |   |   |   |   |   |   |   0 ----- = not used
  |   |   |   |   |   |   |   1 ----- = not used
  |   |   |   |   |   |   0 ----- = not used
  |   |   |   |   |   |   1 ----- = not used
  |   |   |   |   |   0 ----- = Busy-time: (max.)   1s
  |   |   |   |   |   1 ----- =            (min.) 200ms
  |   |   |   |   0 ----- = Buffer full:  32 Byte (*)
  |   |   |   |   1 ----- =              512 Byte
  |   |   |   0 ----- = DSR disabled/passive
  |   |   |   1 ----- = DSR enabled/active
  0   0   0 ----- =    110 bps
  1   0   0 ----- =    300 bps
  0   1   0 ----- =    600 bps
  1   1   0 ----- =  1.200 bps
  0   0   1 ----- =  2.400 bps
  1   0   1 ----- =  4.800 bps
  0   1   1 ----- =  9.600 bps
  1   1   1 ----- = 19.200 bps
```

Notes:

1.) SW1 is invalid if no parity is used.
2.) Setting the data length to 7 bits with no parity is not available.

RS-232C Serial Interface Board

25-poliges Interface



--- --- no direction
<-- --> from Printer
--> <-- to Printer

Testplug RS232C

TxD	2	-->	3	RxD
RTS	4	-->	5	CTS
(DCD)	8	<--	11	SSD
DTR	20	-->	6	DSR

IBM Personal Computer XT **OKI -RS 232C**

25 pins SUB-D (female) connector — 25 pins SUB-D male connector

Name	Pin-No.		Pin-No.	Name
DTE				DTE
Prot.GND	01	==========	01	Prot.GND
TxD	02	>----------	02	TxD
RxD	03	<----------	03	RxD
RTS	04	>---	04	RTS
CTS	05	<---	05	CTS
DSR	06	<---	06	DSR
DCD	08	<---	08	DCD
DTR	20	>----------	20	DTR
Sig.GND	07	----------	07	Sig.GND

IBM Personal Computer AT **OKI -RS 232C**

09 pins SUB-D (female) connector — 25 pins SUB-D male connector

Name	Pin-No.		Pin-No.	Name
special				DTE
Prot.GND		==========	01	Prot.GND
RxD	02	<----------	02	TxD
TxD	03	>----------	03	RxD
CTS	08	<---	04	RTS
RTS	07	>---	05	CTS
DSR	06	<---	06	DSR
DCD	01	<---	08	DCD
DTR	04	>----------	20	DTR
Sig.GND	05	----------	07	Sig.GND

Menü-Setting RS 232 Interface

1.) Diagnostic Test = No
2.) Data Set Ready (DTR) = Invalid
3.) if Ready/Busy protokoll then 'Busy Line' = DTR

RS-422A Serial Interface Board

Testplug RS422A

TxD	4	-->	6	RxD
TxD	22	-->	24	RxD
RTS	7	-->	9	CTS
RTS	25	-->	27	CTS
(DCD)	13	<--	3	SSD
(DCD)	31	<--	21	SSD
DTR	12	-->	11	DSR
DTR	30	-->	29	DSR

RS-422A Serial Interface Board

SWITCH 1 (SW1) (0 = OFF, 1 = ON)

```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | --- = Factory Setting
---------------------------------
  |   |   |   |   |   |   0   0 ----- = BUSY on SSD/Pin 3,12
  |   |   |   |   |   |   0   1 ----- = BUSY on SSD/Pin 3,12
  |   |   |   |   |   |   1   0 ----- = BUSY on RS/Pin 7,25
  |   |   |   |   |   |   1   1 ----- = BUSY on TR/Pin 12,30
  |   |   |   |   0   0 ----- = Diagnostic mode/Monitor Test=HEX DUMP
  |   |   |   |   0   1 ----- = Normal Mode (for printing)
  |   |   |   |   1   0 ----- = Diagn. Mode/Circuit test (test plug)
  |   |   |   |   1   1 ----- = Normal Mode (for printing)
  |   |   |   0 ----- = Protocol: XON/XOFF
  |   |   |   1 ----- =           Ready/Busy
  |   0   0 ----- = Data bits: 7 (parity bit must be enabled)
  |   |   1 ----- =           8
  |   0 ----- = parity bit enabled
  |   1 ----- = parity bit disabled
  0 ----- = even parity
  I ----- = odd parity
```

SWITCH 2 (SW2) (0 = OFF, 1 = ON)

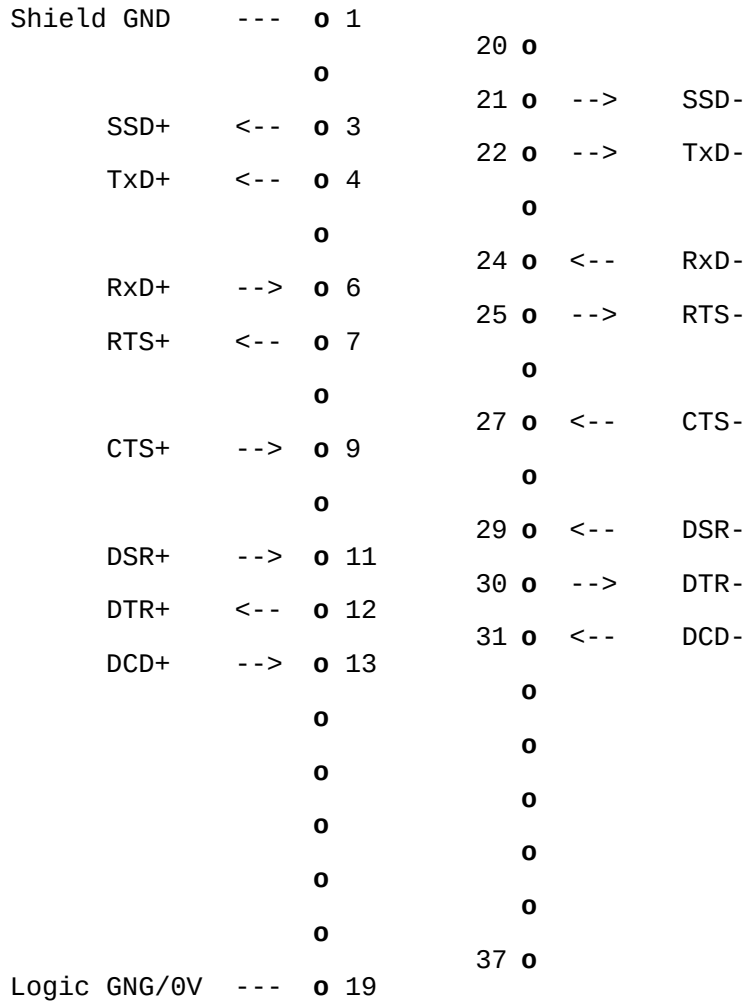
```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | --- = Factory Setting
---------------------------------
  |   |   |   |   |   |   |   0 ----- = not used, must be off
  |   |   |   |   |   |   |   1 ----- = not used
  |   |   |   |   |   |   0 ----- = not used, must be off
  |   |   |   |   |   |   1 ----- = not used
  |   |   |   |   |   0 ----- = Busy-time: (max.)   1s
  |   |   |   |   |   1 ----- =            (min.) 200ms
  |   |   |   |   0 ----- = Buffer full:  32 Byte (*)
  |   |   |   |   1 ----- =              512 Byte
  |   |   |   0 ----- = DSR disabled/passive
  |   |   |   1 ----- = DSR enabled/active
  0   0   0 ----- =    110 bps
  1   0   0 ----- =    300 bps
  0   1   0 ----- =    600 bps
  1   1   0 ----- =  1.200 bps
  0   0   1 ----- =  2.400 bps
  1   0   1 ----- =  4.800 bps
  0   1   1 ----- =  9.600 bps
  1   1   1 ----- = 19.200 bps
```

Notes:

1.) SW1 is invalid if no parity is used.
2.) Setting the data length to 7 bits with no parity is not available.

RS-422A Serial Interface Board

37-poliges Interface



RS-422A Serial Interface Board

Testplug

TxD	4	-->	6	RxD
TxD	22	-->	24	RxD
RTS	7	-->	9	CTS
RTS	25	-->	27	CTS
(DCD)	13	<--	3	SSD
(DCD)	31	<--	21	SSD
DTR	12	-->	11	DSR
DTR	30	-->	29	DSR

Current Loop Interface (seriell)

SWITCH 1 (SW1) (0 = OFF, 1 = ON, x = not used or don't care)

```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | --- = Factory Setting
---------------------------------
  |   |   |   |   |   |   |   0 ----- = Three-wire/four wire
  |   |   |   |   |   |   |   1 ----- = Two-wire
  |   |   |   |   |   |   0 ----- = not used
  |   |   |   |   |   |   1 ----- = not used
  |   |   |   |   |   0 ----- = not used
  |   |   |   |   |   1 ----- = not used
  |   |   |   0   0 ----- = Protocol: Busy/Ready
  |   |   |   1   0 ----- =           XON/XOFF, DC1/DC3
  |   |   |   0   1 ----- = Centr. Blocked Duplex (block max. 2KB)
  |   |   |   1   1 ----- = Selftest
  |   |   0 ----- = Data bits: 7 (parity bit must be enabled)
  |   |   1 ----- =            8
  |   0 ----- = parity bit enabled
  |   1 ----- = parity bit disabled
  0 ----- = even parity
  I ----- = odd parity
```

SWITCH 2 (SW2) (0 = OFF, 1 = ON, x = not used or don't care)

```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | x | 1 | 1 | 1 | x | --- = Factory Setting
---------------------------------
  |   |   |   |   |   |   |   0 ----- = not used, must be off
  |   |   |   |   |   |   |   1 ----- = not used
  |   |   |   |   |   |   0 ----- = Polarity of B+: MARK at Busy
  |   |   |   |   |   |   1 ----- =                 SPACE at Busy
  |   |   |   |   |   0 ----- = Busy-time: (max.)   1s
  |   |   |   |   |   1 ----- =            (min.) 200ms
  |   |   |   |   0 ----- = Buffer full:  32 Byte
  |   |   |   |   1 ----- =              512 Byte
  |   |   |   0 ----- = not used
  |   |   |   1 ----- = not used
  0   0   0 ----- =   110 bps
  1   0   0 ----- =   150 bps
  0   1   0 ----- =   300 bps
  1   1   0 ----- =   600 bps
  0   0   1 ----- = 1.200 bps
  1   0   1 ----- = 2.400 bps
  0   1   1 ----- = 4.800 bps
  1   1   1 ----- = 9.600 bps
```

Notes:

1.) SW1 is invalid if no parity is used.
2.) Setting the data length to 7 bits with no parity is not available.

Two-Wire Connections:

a) Current Source: System Side/Host

Used Pins: D- = pin 10 and B+ = pin 18 must be jumpered.
Used Pins: D+ = pin 9 and B- = pin 19 only.

SP1: **A B**
o-o o

SP2: **A B**
o-o o

b) Current Source: Printer Side
Used Pins: D- = pin 10 and B+ = pin 18 must be jumpered.
Used Pins: B- = pin 19 and SG = pin 7 only.

SP1: **A B**
o o-o

SP2: **A B**
o-o o

Three-Wire Connection:

Current Source: Printer Side only
Used Pins: D- = pin 10, B- = pin 19, and SG = pin 7 only.

SP1: **A B**
o o-o

SP2: **A B**
o o-o

Four-Wire Connection:

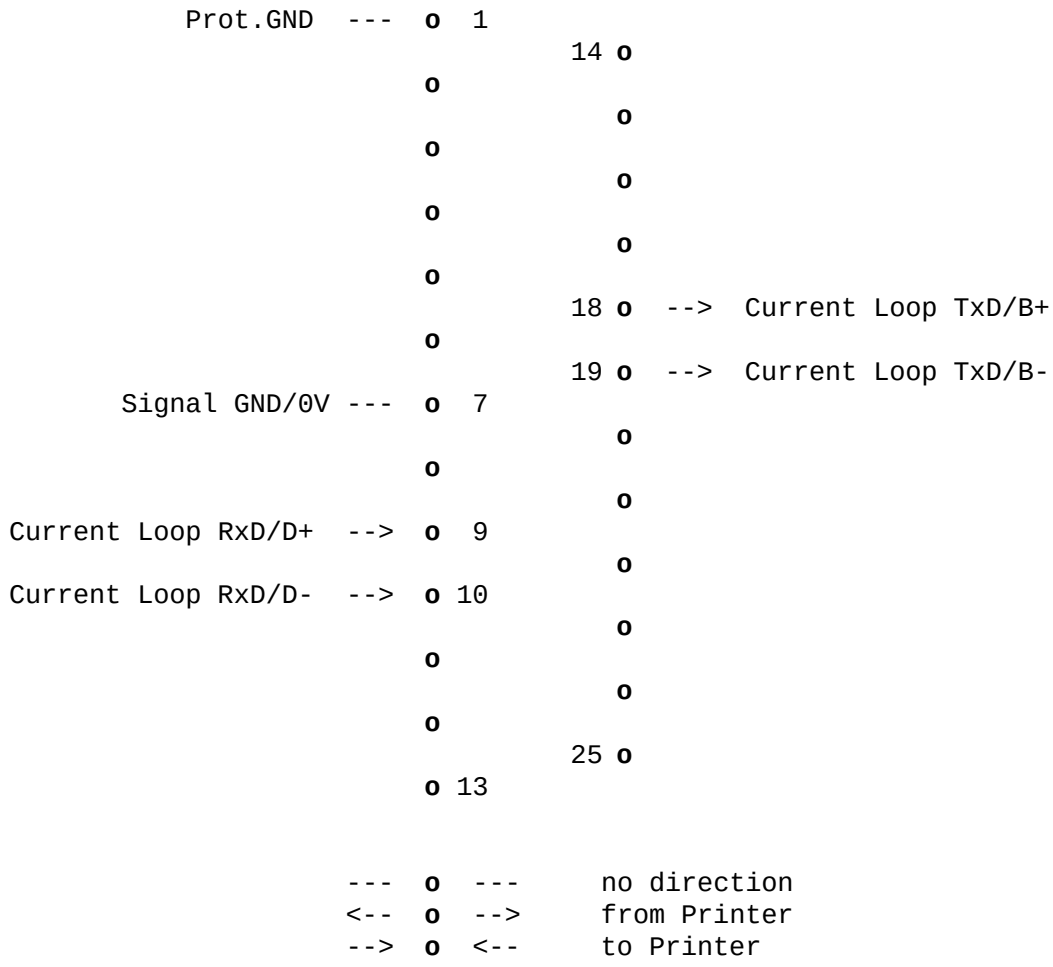
Current Source: System Side, Host only
Used Pins: D+ = pin 9, D- = pin 10, B+ = pin 18,
and D- = pin 19 only.

SP1: **A B**
o-o o

SP2: **A B**
o-o o

Remark:
- For 'Two-Wire Connections' only 'STX/ETX/ACK/NAK Handshake' possible!
- For 'Three- and Four-Wire Connections' all handshaks are supported.

25-poliges Interface



Testplug for Current Loop Internal Test
(simulates a two-/three-wire connection)

```
Current Loop RxD/D-  10 <-- 18  Current Loop TxD/B+

      Signal GND/0V   7 <-- 19  Current Loop TxD/B-
```

Jumper Setting for Current Loop Internal Test

```
    SP1:        A   B          SP2:         A   B
    RxD active  o o-o          TxD passive  o-o o
```

Switch Setting for Current Loop Internal Test

SWITCH 1 (SW1) (0 = OFF, 1 = ON, x = not used or don't care)

1	2	3	4	5	6	7	8
x	x	x	1	1	x	x	x	--- = Self Test Setting

SWITCH 2 (SW2) (0 = OFF, 1 = ON, x = not used or don't care)

1	2	3	4	5	6	7	8
x	x	x	x	x	x	x	x	--- = Self Test Setting